

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

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Revision of the Commission's
Rules to Ensure Compatibility
with Enhanced 911 Emergency
Calling Systems)

)

) CC Docket No. 94-102

)

)

)

AT&T Wireless Services, Inc.
Request for Waiver)

)

) DA-01-894

)

To: The Commission

**COMMENTS OF APCO AND NENA,
AS PUBLIC SAFETY ORGANIZATIONS,
IN RESPONSE TO REQUEST FOR WAIVER OF
AT&T WIRELESS SERVICES, INC.**

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SUMMARY

The AT&T Request for Waiver illustrates why APCO and NENA, as Public Safety Organizations, fear that the waiver process, unless strictly administered, threatens to push the Commission farther down a slippery slope toward indefinite delay in the deployment of Phase II E9-1-1 capability.

The Commission has required waiver applicants to explain why alternatives within the rules could not be employed. AT&T's explanations fall short of this standard, among other reasons, because the information on which they are based has been withheld from public inspection. The drawbacks of the applicant's chosen ALI solution for its TDMA network, Mobile-Assisted Network Location System ("MNLS"), appear to outweigh its advantages, and there is no explicit timetable for phasing it out. Taken together with the proposed overlay network, GSM, and its location solution, E-OTD, there is no clear path to full compliance and no obvious expiration date for the requested waiver.

This absence of a clear path to compliance differentiates the AT&T Request from the FCC's grant of the VoiceStream waiver, which also involved an E-OTD location solution applied to a GSM system. But the most striking difference is the Commission's finding that VoiceStream effectively had no alternative to its proposed solution. AT&T at present is a TDMA carrier which does not lack for better location choices than MNLS while it is moving to GSM with E-OTD.

NENA has observed a trial of network-based location which it believes is similar to a trial of the same system rejected by AT&T in favor of its own MNLS. The results of the NENA-observed trial are so far superior to what is known of the unpublished MNLS results as to cast

doubt on AT&T's choice. The doubt should be resolved by full or partial disclosure of all the exhibits attached to the AT&T Request.

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The Association of Public-Safety Communications Officials-International, Inc. ("APCO") and the National Emergency Number Association ("NENA") (collectively referred to herein as "Public Safety Organizations") hereby submit the following in response to the Commission's *Public Notice*, DA 01-894, released April 6, 2001, seeking public comments regarding a "Request for Waiver of the E911 Phase II Location Technology Implementation Rules" filed by AT&T Wireless Services, Inc. ("AT&T") on April 4, 2001, in the above-captioned proceeding.

APCO is the nation's oldest and largest public safety communications organization. Most of APCO's over 15,000 individual members are state or local government employees who manage and operate police, fire, emergency medical, forestry conservation, highway maintenance, disaster relief, and other communications systems that protect the safety of life, health and property. These systems include radio communication operations,

telecommunications and information networks, and Public Safety Answering Points (PSAPs). APCO has participated in all stages of this proceeding.

The mission of NENA and its 7000-plus members is to foster the technological advancement, availability, and implementation of a universal emergency telephone number system. NENA is the only public safety organization dedicated solely to the technical and managerial issues facing 9-1-1. NENA's technical committees and managerial committees produce recommended standards for 9-1-1 equipment, and managerial procedures. In carrying out its mission, NENA promotes research, planning, training and education. The protection of human life, the preservation of property and the maintenance of general community security are among NENA's objectives.

I. INTRODUCTION

The Public Safety Organizations are deeply concerned that the waiver process is pushing the Commission further down a slippery slope towards indefinite delays in the deployment of Phase II E911 capability. While some wireless carriers are moving forward and appear to be on target with regard to the upcoming October 1 compliance deadline, others have fallen behind and, in a few instances, are requesting waivers to accommodate preferred technology choices or overall business strategies. The AT&T request is particularly troublesome, as it proposes both interim and long-term solutions that fall well short of the Commission's accuracy requirements and implementation deadlines. Moreover, much of the record material that AT&T offered in support of the waiver has not been made public, making it extremely difficult to present a comprehensive critique of the request.

AT&T's Request for Waiver is based on its stated intention to "overlay" its current TDMA network with a GSM network to accommodate the implementation of "the next

generation of mobile multimedia services.” Thus, rather than install a fully compliant TDMA-compatible Phase II location technology, AT&T proposes to deploy gradually E-OTD technology as it rolls out its new GSM network, and in the interim to rely upon a network-based technology, Mobile-Assisted Network Location System (“MNLS”), for its ongoing TDMA operations. The difficulty with this approach is two-fold. First, MNLS falls well short of meeting the FCC’s accuracy requirements for network based technology; and second, AT&T does not provide any schedule or target dates for deploying GSM units with E-OTD.

AT&T relies heavily on the various studies and field tests to support its Request for Waiver. Yet, few if any of the actual results of those studies and tests are presented or even summarized for public review. Rather the information is redacted throughout the Request for Waiver, leaving the public in the dark. AT&T is one of the nation’s largest wireless carriers, with approximately 16 million subscribers. This is not a trivial matter, therefore, and should not be addressed by the Commission without a full and fair public discourse and review of the record. Therefore, we urge the Commission and AT&T to take necessary steps to release the redacted information for public inspection and comment as soon as possible.

II. AT&T HAS NOT MET THE FCC’S STANDARD FOR WAIVER OF THE WIRELESS E911 RULES.

As explained in the *Fourth Memorandum Opinion and Order*, “the Commission’s rules may be waived for good cause shown,” but only “if special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest.”¹ More specifically, the Commission stated that “ALI technologies are already, or will soon be available that provide a

¹ *Fourth Memorandum Opinion and Order in CC Docket 94-102*, FCC 00-326, released September 8, 2000 (hereinafter “*Fourth MO&O*”), at ¶43, citing *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) and *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

reasonable prospect for carriers to comply with the E911 Phase II requirements” and that “waivers thus should not generally be warranted, especially in light of the vital public safety benefits of Phase II.”² Therefore the Commission established a specific framework for Phase II waivers,³ which can be summarized as follows:

- Applicants should “specify the solutions they considered and explain why none could be employed.”
- The public benefits of a waiver must outweigh the disadvantages to the public.
- Waivers must be short-lived, with defined terminations.
- Waiver applicants must set forth a “clear path to full compliance.”
- If progress is delayed, “the carrier should specify the reason for the delay and provide a revised schedule.
- There must be a viable fallback solution if the proposed alternative approach for compliance does not perform as expected.
- Progress reports must be filed periodically.

As discussed below, AT&T has not even come close to meeting these requirements, and its request must, therefore, be denied.

First, while AT&T has identified alternative location technologies that it supposedly considered, little or no hard data is provided for public consumption to support AT&T’s rejection of those technologies. Public scrutiny of that data is essential for the Commission to conduct a full and fair review of the Request for Waiver. In those instances where AT&T does describe certain aspects of its technology review, the information provided does little to support its

² *Id.* at ¶44.

³ *Id.* at ¶¶44-45.

position. For example, AT&T indicates that Grayson's Angle of Arrival ("AOA") technology was selected for its Denver trial "based largely on the availability of AOA antennas, which when used in conjunction with TDOA antennas, were expected to improve accuracy performance, particularly in rural areas." No non-confidential information is provided regarding the results of the Denver trial, though AT&T goes to great lengths to dismiss AOA as an option because of zoning concerns that it believes are likely to arise due to the size of AOA antennas (something AT&T could have ascertained without a trial). It would appear, therefore, that AOA was set up as a "straw man" only to be knocked down to justify AT&T's choice of MNLS.

Second, AT&T has not demonstrated that the perceived benefits of MNLS outweigh its substantial drawbacks. MNLS is significantly less accurate than the Commission's benchmark of 100 meters, 67% of the time, for network-based technologies. According to AT&T, MNLS will only provide 250 meter accuracy 67% of the time. A 250 meter radius creates a "search area" in which a caller might be located of 196,350 square meters, or approximately 49 acres. In contrast, a 100 meter radius (as required in the FCC's rules) creates a search area of 31,416 square meters, or approximately 8 acres. Thus, the MNLS is not "slightly" less accurate than the FCC's requirements, it is more than six times less accurate! Attached is a map of downtown Washington, DC which graphically demonstrates the impact of these differences in search area.

Increasing the size of the area in which an emergency call might be located has a major, and dangerous, impact on emergency response activities. Call-takers must devote additional time to obtaining verbal descriptions of a caller's location, a process that is highly susceptible to error absent a easily ascertainable and explicit street address. Callers will often refer to landmarks they can see, but which are not on maps or otherwise known personally to the call taker. Moreover, in some instances callers will not be able to provide any information at all

regarding their location, leaving it to emergency responders to conduct a physical search of the area. Obviously, the larger the search area the longer it will take on average to find the caller. That additional time could easily result in the loss of life in the case of a medical emergency, a violent crime that could have been stopped in progress, or a fire that grows from being a mere nuisance to a serious threat to the safety of life and property.

AT&T argues that the benefits of MNLS outweigh its lack of accuracy. For example, AT&T claims that MNLS will support “all TDMA handsets roaming on the AT&T TDMA network.” However, locating roamers is a potential benefit of any network-based approach and should not be considered a basis for a waiver to permit a use of particular network technology on a delayed basis. Moreover, as AT&T notes, MNLS only supports roaming of TDMA handsets. MNLS will not support CDMA or AMPS handsets attempting to roam on the AT&T network.⁴

AT&T also fails (at least in the public portion of its Request) to identify what we understand to be other significant deficiencies of MNLS. In particular, MNLS requires that handsets be able to “hear” at least cell three sites, which is often impossible in rural settings with widely dispersed cell sites, building interiors, and other locations with significant signal blockage from terrain or physical structures. Yet locations with marginal signals are often those for which accurate location information is most critical, as callers’ verbal description of their location (assuming they know their location) may be garbled or otherwise unintelligible. Again, it is unclear to what extent these technical factors were considered in AT&T’s analysis.

Third, AT&T provides no indication as to when it will be able to eliminate MNLS in favor of the somewhat more accurate E-OTD solution for its new GSM networks. In particular, there is no initial implementation date or ongoing deployment schedule provided for AT&T’s

⁴ Indeed, we have been informed that MNLS will not even support TDMA handsets that are operating in a default AMPS mode.

GSM/E-OTD capability, or for the elimination of the “old” TDMA network.⁵ Since AT&T’s decision to overlay a GSM network is being driven by future high volume data applications (Request, 2), a question also arises as to whether AT&T will find it necessary to perpetuate its TDMA network to handle ongoing demand for voice communication. In short, it is at best a mystery as to how long PSAPs, subscribers and the general public will be restricted to the “second class” location capability offered by MNLS.⁶

Fourth, there is no “clear path to full compliance” offered in AT&T’s Request for Waiver. Its ultimate solution is supposedly E-OTD. However, even E-OTD does not meet the relevant FCC accuracy requirements for handset-based solutions (50 meters 67% of the time), it only promises to meet the less stringent network accuracy requirements. AT&T does claim that over time the accuracy of E-OTD is likely to improve, but again there is no assurance that 50 meter accuracy will ever be achieved. Indeed, AT&T volunteers that if E-OTD is unable to meet the 50 meter requirement by October 1, 2003, it “will adopt another methodology that comports with the Commission’s requirements.” AT&T does not suggest that it will be able to convert immediately to an alternative technology on October 1, 2003. That, therefore, leaves open the potential for further postponement of Phase II deployment while AT&T attempts to deploy yet another Phase II technology. Not only is there no “clear path,” there is not even an end in sight.

⁵ AT&T states vaguely that the “TDMA customer base likely will be declining in the coming years,” (Request, 10), leaving the Public Safety Organizations to wonder how many years TDMA/MNLS would be left to limp along. *See also, Telephony*, April 30, 2001, at 20: “In San Diego, AT&T Wireless told former GTE Wireless customers they will have analog-only service as it transitions them to its network. AT&T claims it is ‘upgrading’ these customers to TDMA, which it is de-emphasizing in favor of GSM.”

⁶ Recent reports are that AT&T’s strategic partner for GSM deployment, NTT DoCoMo, has delayed its highly publicized launch of 3G technology. *See, e.g., Wireless Week*, April 30, 2001, at 2.

III. AT&T'S REQUEST DIFFERS SIGNIFICANTLY FROM THE FCC'S FINDINGS IN THE VOICESTREAM WAIVER ORDER.

AT&T repeatedly likens its situation to that of VoiceStream, a wireless carrier granted a waiver to use E-OTD for its GSM system.⁷ (Request, 1, 3, 5) There are marked differences, however, which bear directly on the waiver case. First, the FCC found that VoiceStream's "NSS/E-OTD approach may be the only method available to GSM carriers for compliance with Phase II for some time." (*Fourth MO&O*, ¶56) AT&T is not presently a GSM carrier. It is a TDMA carrier and does not lack other choices for Phase II ALI.⁸

Also missing from the AT&T Request is the prompt introduction of E-OTD handset capability which VoiceStream offered on a timetable close to that required by the *Fourth MO&O* and which the Commission imposed as a condition on the waiver. (*Fourth MO&O*, ¶¶62-66) The FCC concluded that this timetable insured the NSS solution need be relied on only temporarily until E-OTD became fully operational, or as a fallback thereafter. As discussed above, we have no such assurances from AT&T about the replacement of TDMA/MNLS with GSM/E-OTD. We consider it possible, or even likely, that TDMA/MNLS will survive far beyond its use as a temporary improvement on Phase I. (notes 5, 6, *supra*)

The Public Safety Organizations do not wish to be misunderstood as claiming any right to obstruct the carriers' freedom to change business plans – in particular, for AT&T to choose a GSM overlay to its TDMA network. At the same time, carriers should accept the regulatory consequences of their choices. For years, we have been warning that if carriers are allowed to

⁷ *Fourth MO&O* at ¶¶55-68.

⁸ Request, Section III. As noted above, it is difficult to evaluate AT&T's choice of MNLS because the relevant data has been kept secret. We attempt to break through this barrier in Sections IV and V of our comments, *infra*. AT&T

put off compliance with Phase II indefinitely because some newer and better solution is just around the corner, life-saving accurate and reliable location will never happen. The better course – indeed, the only viable course – in such a rapidly-changing technological environment, is to do the best we can now with what is proven to be available, and upgrade later when better solutions can be shown as workable.

IV. NENA’S PARTICIPATION IN A SEATTLE TRIAL MUCH LIKE AT&T’S CASTS DOUBT ON THE REQUEST’S CLAIMS FOR MNLS.

NENA sought and was granted permission to observe a U.S. Wireless trial of its “Location Pattern Matching” system (“RadioCamera™”) in Seattle in March.⁹ On information and belief, the facilities used and the general procedure followed were similar to the AT&T trial whose results have been appended to AT&T’s Request as Exhibit F but withheld from public inspection. Under its nondisclosure agreement with U.S. Wireless, NENA was allowed to disseminate its analysis of the results. Articles by Jim Kauffman of U.S. Wireless and Rick Jones, one of NENA’s observers, are at the printer and scheduled to appear in the June, 2001 issue of *NENA News*, which should be out by the end of this month. The results of the NENA-observed trial also have been filed with the FCC by U.S. Wireless and are available on the Commission’s Electronic Comment Filing System under date of April 10, 2001.

Kauffman’s brief description of the NENA trial in his upcoming article reads:

A Location Pattern Matching System provided by U.S. Wireless Corp. was again used. The network-based system, using existing handsets,

says it chose MNLS, among other reasons, so it would not have to “build two overlaid systems at the same time.” (Request, 5-6)

⁹ NENA’s policy is not to endorse any location provider’s service or equipment. The U.S. Wireless trial represented an opportunity for NENA as an association to observe location determination testing not arising from the interests of any individual members – such as the trials conducted earlier in New Jersey, Houston and other early-adopting 9-1-1 Authority jurisdictions.

demonstrated accuracy within 61 meters (half a city block) two-thirds of time and within 50 meters 60% of the time.

The NENA-requested trial of the U.S. Wireless 9-1-1 caller location solution was conducted over nine days in a test area that included dense urban, residential, light industrial, waterfront, and highway environments. Over 16,000 location “fixes” were evaluated from 18 stationary test points and over nine mobile test routes, encompassing a wide range of test environments.

The full report of the NENA-requested Seattle trial is available from the U. S. Wireless FCC filing which can be found online in two parts at [FCC’s ECFS site].¹⁰

Rick Jones’ forthcoming article looked at both first and last “fixes” (or location determinations), based on his view that the first fix would be the crucial basis for the routing of the call and the information delivered to the call taker, while the last would represent a different approximation if requested by the call taker. Jones put his results into the attached charts. The final chart, “Seattle Test Results,” shows, for 1455 total calls, first fixes under 50 meters nearly 60% of the time, under 100 meters 76% and under 300 meters 94%.

Without meaning to endorse RadioCamera™ or any other Phase II solution, the Public Safety Organizations respectfully suggest that these tested Seattle results are different enough from the claimed MNLS performance of 250 meters (67%) and 750 meters (95%) – not verified through any published results we’ve seen – to cast serious doubt on the public interest in AT&T’s proposed sacrifice of potentially life-saving accuracy for what (on the disclosed record so far) amounts to private business convenience.

¹⁰ http://svartifoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6512564818 and http://svartifoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6512564819.

V. THE EXHIBITS TO THE REQUEST SHOULD BE DISCLOSED OR THEIR ENTITLEMENT TO PROTECTION JUSTIFIED.

The disclosed outcomes of the Seattle NENA trial also cast doubt on the eligibility of the Request's Exhibit F for confidential treatment under the Commission's rules at 47 C.F.R. §0.457(d).¹¹ As noted above, the substance of the AT&T/U.S. Wireless trial in Seattle may already be in the public domain through U.S. Wireless's submission of the ostensibly comparable NENA trial results to the FCC on April 10th. Under NENA's nondisclosure agreement with U.S. Wireless, the vendor permitted disclosure of the NENA trial results. Assuming AT&T's nondisclosure agreement is similar, we suggest that AT&T ask U.S. Wireless to allow disclosure of the results of the AT&T trial. Alternatively, U.S. Wireless could ask AT&T for permission and report the carrier's response to the agency.

The same process might be equally feasible for the other vendor trials in which AT&T took part. If the results were at all favorable for a given vendor, presumably the vendor would not object to at least partial disclosure. The only benefit of secrecy in such cases, as we see it, would run to AT&T's private interest in avoiding public scrutiny of its choice of MNLS over other options.

The Public Safety Organizations prefer to wait for AT&T and the interested vendors to reply, if they choose, to the above considerations. Some time after May 21, 2001, we are prepared to consider filing a request for disclosure of some or all of Exhibits A-G to the AT&T Request for Waiver.

¹¹ We are not convinced that the material in Exhibit F consists entirely of "trade secrets and commercial or financial information obtained from any person and privileged or confidential." Since the Commission's rules apparently allow the agency to defer decision on protecting the information from disclosure until a third party requests the information, Section 0.459(d)(1), the Public Safety Organizations are prepared to make a formal application, if necessary, for disclosure of Exhibit F and perhaps other of the attachments to the Request.

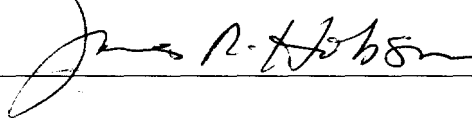
VI. CONCLUSION

For the reasons discussed above, the Public Safety Organizations believe that the FCC cannot and should not grant the AT&T Request as presented.

Respectfully submitted,

PUBLIC SAFETY ORGANIZATIONS

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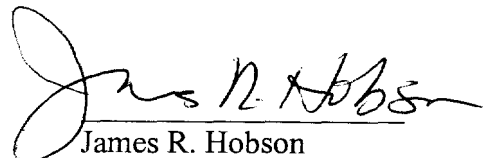
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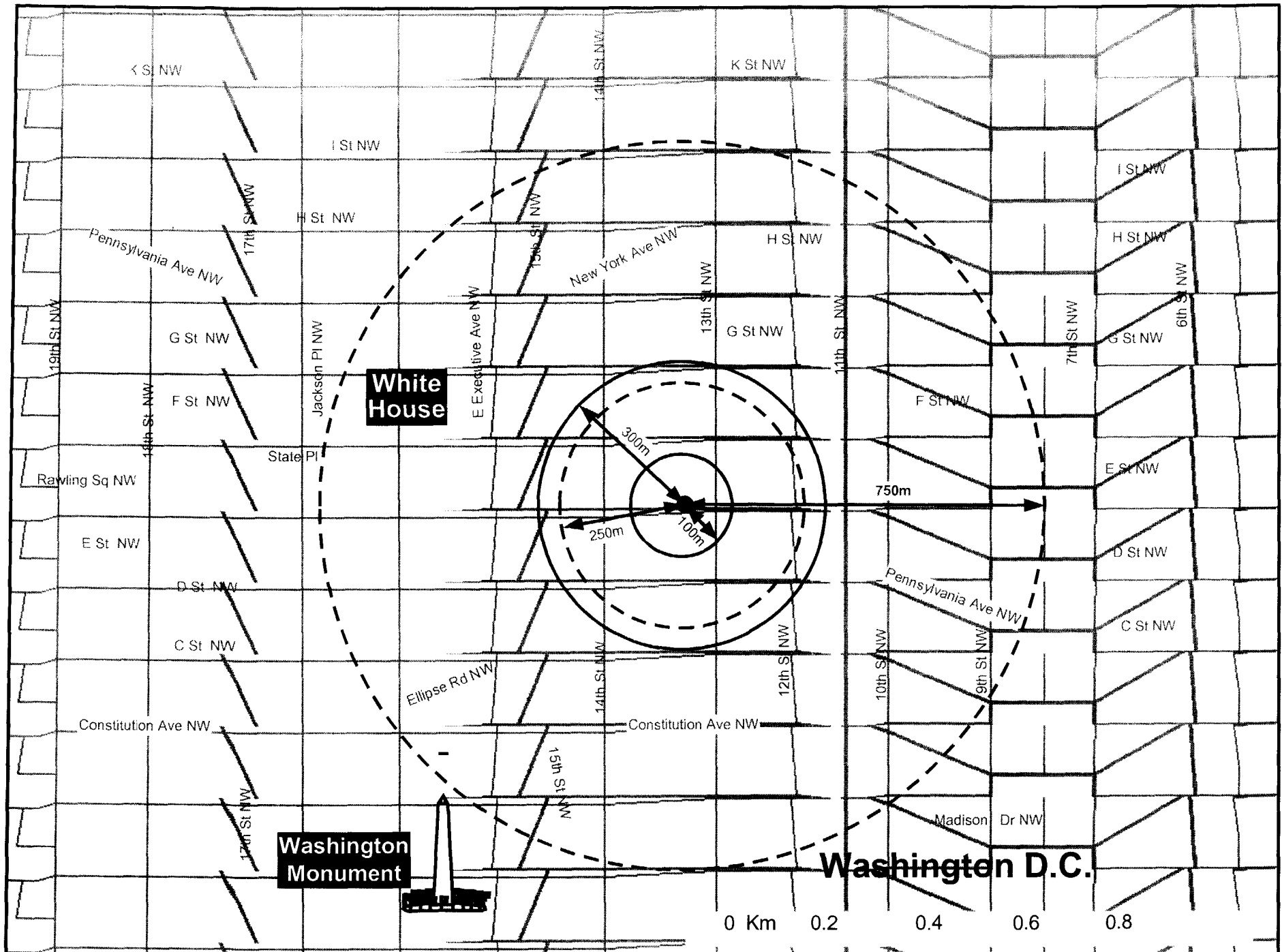
CERTIFICATE OF SERVICE

The foregoing Comments of APCO and NENA, as Public Safety Organizations, were mailed today to:

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May 7, 2001


James R. Hobson



Rick Jones article--Charts

Thirty stationary tests--parking area at motel					
	First	Last		First	Last
1.)	38	38	11.)	38	8
2.)	8	8	12.)	38	8
3.)	8	8	13.)	8	38
4.)	49	8	14.)	8	8
5.)	8	8	15.)	8	8
6.)	38	38	16.)	38	38
7.)	38	903	17.)	38	8
8.)	38	926	18.)	38	38
9.)	8	38	19.)	32	32
10.)	8	38	20.)	903	38
			21.)	32	8
			22.)	38	38
			23.)	8	8
			24.)	8	38
			25.)	8	38
			26.)	38	38
			27.)	32	32
			28.)	49	32
			29.)	49	38
			30.)	38	38

Figure 1. Stationary site tests, motel parking area, 30 calls. Column labeled "First," shows difference from actual location in meters for the initial location determination, the data which could be used to route the call and which would be deliverable to the 9-1-1 call taker. Column labeled "Last," shows difference from actual location in meters for the location determination done approximately 30 seconds later, the data which could be deliverable to the 9-1-1 call taker if utilizing a 'refresh location' button/key.

Thirty Mobile Tests--NENA-selected route					
	First	Last		First	Last
1.)	22	31	11.)	85	79
2.)	755	43	12.)	7	26
3.)	34	11	13.)	9	69
4.)	24	46	14.)	168	40
5.)	38	26	15.)	27	82
6.)	34	28	16.)	16	93
7.)	58	49	17.)	32	41
8.)	12	26	18.)	36	35
9.)	24	61	19.)	43	15
10.)	27	68	20.)	53	46
			21.)	8	50
			22.)	12	7
			23.)	18	47
			24.)	16	18
			25.)	47	26
			26.)	12	46
			27.)	12	8
			28.)	25	58
			29.)	15	41
			30.)	48	28

Figure 2. Mobile route tests, major streets, Seattle urban area, 30 test calls. Column labeled "First," shows difference from actual location in meters for the initial location determination, the data which could be used to route the call and which would be deliverable to the 9-1-1 call taker. Column labeled "Last," shows difference from actual location in meters for the location determination done approximately 30 seconds later, the data which could be deliverable to the 9-1-1 call taker if utilizing a 'refresh location' button/key.

Seattle Test Results			
Category	under 300m	under 100m	under 50m
First test calls	94%	76%	59%
FCC mandate	95 %	67%	****

Figure 3--The above lists the percentages of the 1,455 test calls' first-time location data find for under 300 meters and under 100 meters. It also lists the percentage under 50 meters. Only the first location data response for each call was used because it would be what could control routing and what would be initially sent to the PSAP.